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AUTHOR Coats, William D.
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ABSTRACT

As a result of behavioral science research cited in the introduction, the author concludes that: (1) two basic factors, labeled teacher-centered and student-centered, account for much of the variance in student perceptions of teachers; or (2) a single evaluative dimension may be an almost overwhelming factor in influencing responses to rating scales. This study attempts to determine the number and nature of factors which account for students' perceptions of teacher effectiveness. The Teacher Image Questionnaire, used by Western Michigan University's Educator Feedback Center, was sent to 1,427 teachers representing all academic fields in grades 7-12 from a five-state midwestern area. This procedure yielded 42,810 student responses which were factor analyzed. A single factor, labeled teacher charisma, was found to account for 61.5% of the variance in test items. Five other factors accounted for the balance. It was concluded that teacher charisma is probably a function of teacher effectiveness, but that student ratings would best be used as only one part of a total evaluation package which measured additional variables. The limitations, strengths, and meaning of student reactions to teachers are discussed. A brief description of the work of the Educator Feedback Center is included. (TL)

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STUDENT PERCEPTIONS OF TEACHERS--A FACTOR ANALYTIC STUDY

William D. Coats, Associate Professor and
Ditector, Educator Feedback Center

Western Michigan University
Kalamazoo, Michigan

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ABSTRACT

The objectives of this study were to determine the number and nature of factors which account for student perceptions of teacher effectiveness.

The technique consisted of factor analyzing the popular Teacher Image Questionnaire used by the Educator Feedback Center at Western Michigan University.

The sample consisted of 1,427 classes yielding 42,810 student responses from teachers representing all academic fields in grades 7-12 from Michigan, Illinois, Indiana, Ohio, and Wisconsin.

A single factor accounted for an average of 61.5% of the variance in test items. The remaining 40% of the variance to be accounted for was evenly distributed among five other factors.

The results of this study should help educators to recognize the limitations, strengths, and meaning of student reactions to teachers.

Introduction

Student perceptions of teachers are considered by many to represent relevant information regarding teacher effectiveness. However, at the present time educators are in disagreement about the type of inferences which can be drawn from such perceptions or reactions. It is possible that student ratings of teachers are based primarily on several variables such as teacher knowledge, enthusiasm, concern for others, and sense of humor, or on some single factor. The specific objective of this study was to determine the number and nature of factors which underlie student perceptions of teachers.

Social scientists generally view behavior of group leaders as loading on essentially two factors. Although these factors have been given a number of different labels by researchers, they may be thought of as 1) person-centered and 2) organization-centered. The early work of Halpin (1958) and Stogdill (1966) using the Leader Behavior Description Questionnaire (LBDQ) suggested that educational administrators were perceived along two basic dimensions, initiation of structure and consideration. The LBDQ-12 (1963) was developed in an attempt to increase the number of discrete factors measured by the instrument. However, Brown (1967) in an extensive factor analytic study found the LBDQ-12 to load on just two basic factors which he labeled "person" and "system." In the field of management writers such as Blake and Muton (1964) and Kepner and Tregoe (1966) identified two factors related to overall managerial effectiveness as production centered and human centered. Stern (1963) summarizes research on classroom instruction with respect to the

nondirective vs. directive teaching techniques. Teacher behavior classification systems such as the one by Flanders (1963) are based on the two factors of direct and indirect teacher influence. As a result of the research cited above, one has some reason to believe that two basic factors, which might be labeled teacher-centered and student-centered, account for much of the variance in student perceptions of teachers. The work of Osgood (1957), however, suggests that a single evaluative or attitudinal dimension may be an almost overwhelming factor in influencing responses to rating scales.

The type of student perceptions investigated in this study were based on the Teacher Image Questionnaire used by the Educator Feedback Center at Western Michigan University. This is a popular questionnaire which is being used currently as a feedback device by several thousand teachers throughout the continental United States. A brief description of the services of the Educator Feedback Center is presented below.

The basic service provided for teachers consists of a tabulated image profile representing average student reactions to questions believed to be related to teacher effectiveness for the teacher on whom the data are gathered. These student perceptions are obtained by means of the above mentioned Teacher Image Questionnaire which requires about ten to fifteen minutes to complete. Individual responses to the questionnaire are anonymous and it is used now only in grades seven through twelve. The questionnaire is designed to measure reactions varying from poor to excellent to questions like the following:

> Knowledge of Subject: (Does he have a thorough knowledge and understanding of his teaching field?)

Fairness: (Is he fair and impartial in his treatment of all students in the class?)

Control: (Is the classroom orderly but also relaxed and friendly?)

Encouragement of Student Participation: (Does this teacher encourage you to raise questions and express ideas in class?)

Sense of Humor: (Does he share amusing experiences and laugh at his own mistakes?)

Assignments: (Are assignments sufficiently challenging without being unreasonably long?)

As soon as the questionnaires are completed they are returned to the Educator Feedback Center for analysis. After analysis, a teacher image profile is developed and sent to the teacher on whom the feedback was gathered. An example of a profile for just five of the twelve variables measured by the questionnaire is shown in figure one.

Key to Questions:

1. Fairness
2. Control
3. Attitude toward students
4. Variety
5. Sense of humor

(Etc.)

Figure 1

Method

The sample for this study consisted of 837 classes with male teachers and 590 classes with female teachers. Teachers in these 1,427 classrooms had requested the type of feedback services described above and represented all academic fields in grades seven through twelve from the states of Michigan, Illinois, Indiana, Ohio, and Wisconsin during the 1967-68 school year when the data were gathered. It should be noted that since each of the 1,427 cl sses was composed of approximately 30 students, the total number of student responses on which the factor analysis was based is equal to 42, 810.

Teachers were mailed the appropriate number of questionnaires and instructed to ask one of their peers to administer them. Standard instructions were read to students which requested them to respond honestly and frankly with the assurance of complete anonymity. Completed questionnaires were collected and returned by mail to the Educator Feedback Center, Western Michigan University. Student responses were then converted into punched card form and a mean score per class for each item was computed. These means served as input data for development of the inter-correlation and factor analysis matrices described below.

The data were analyzed in two steps. The first step involved the development of a 12 x 12 intercorrelation matrix for the twelve items on the questionnaire. The second step consisted of converting the inter-correlation matrix into a factor matrix based on the principle axis method of rotation. Results of these analyses are discussed in the next section.

Results

Results of the intercorrelation analysis are displayed in the 12 x 12 intercorrelation matrix for the twelve item questionnaire shown in Table 1.

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Insert Table I about here

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A cursory examination of this matrix suggests that all items of the questionnaire share a significant amount of common variance since the 66 pairwise correlations range from .32 for the correlation between teacher control and sense of humor to .85 for the correlation between teacher fairness and attitude toward students. There did not appear to be meaningful and clearcut clusters of pairwise correlations. However, there does appear to be some tendency for what might be called student centered items to cluster together and for items related to structure to cluster together.

Results of converting the intercorrelation matrix into a factor matrix based on the principle axis method of rotation appear in Table II.

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Insert Table II about here

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This matrix contains information for only those three factors which accounted for a significant amount of variance in test items. As was suggested by the intercorrelation analysis, a single factor seems to be accounting for much of the variance in all items. However, two other factors appear to be worth noting because of their high correlations

TABLE I

Intercorrelation Matrix for Teacher Image Questionnaire

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.00	.61	.54	.56	.54	.72	.59	.50	.46	.64	.44	.54
2		1.00	.66	.49	.66	.70	.59	.58	.57	.69	.58	.60
3			1.00	.47	.85	.57	.57	.72	.46	.66	.58	.53
4				1.00	.38	.57	.48	.39	.32	.38	.33	.70
5					1.00	.59	.64	.81	.54	.76	.65	.49
6						1.00	.61	.54	.71	.74	.60	.53
7							1.00	.68	.54	.62	.65	.62
8								1.00	.53	.74	.66	.49
9									1.00	.65	.57	.34
10										1.00	.67	.44
11											1.00	.35
12												1.00

KEY TO ITEM NUMBERS

1. Knowledge of Subject
2. Clarity of Explanations
3. Fairness
4. Control
5. Attitude Toward Students
6. Stimulates Interest
7. Attitude Toward Subject
8. Attitude Toward Student Opinions
9. Variety in Teaching Procedures
10. Encouragement of Student Participation
11. Sense of Humor
12. Planning and Preparation

TABLE II

Factor Loadings for Teacher Image Questionnaire

		Knowledge of subject	Clarity of explanations	Fairness	Control	Attitude toward students	Stimulates interest	Attitude toward subject	Attitude toward student opinions	Variety in teaching procedures	Encouragement of student participation	Sense of humor	Planning and preparation
Factors	1	.76	.83	.82	.63	.85	.84	.81	.82	.71	.86	.76	.69
	2	.004	.21	-.08	.16	-.04	-.12	.09	.16	.03	-.07	-.10	-.24
	3	-.19	-.06	.35	.04	.30	-.40	.06	.29	-.49	-.11	-.05	.22

with some of the items. Table III, which contains the squared factor loadings from Table II, shows the proportion of variance in each item as well as in the total questionnaire which is accounted for by each of the three significant factors. Factor I accounts for 61.5 per cent of the variance in the questionnaire, factor II accounts for an additional 9.7 per cent of the variance and factor III accounts for 6.7 per cent more of the total test variance. So these three factors account for 77.9 or about 80 per cent of the total variance in the questionnaire. Also, these factors account for a minimum of 67 per cent and a maximum of 87 per cent of the variance in any single item. The three factors account for the least amount of variance, 67.5 per cent, in teacher attitude towards subject and the largest amount of variance, 87 per cent, in the variable student interest.

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Insert Table III about here

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An examination of the direction of the factor loadings shown in Table II and of the coefficients of determination in Table III suggests some reasonable labels for the three factors. The single most important factor is viewed here as a kind of teacher charisma or teacher popularity. Even though some of the items such as teacher knowledge of subject and teacher attitude toward student ideas appear intuitively to have no necessary relationship with each other, factor I accounted for much of the variance in these and other seemingly independent items. Of course, a case could be made for other slightly different labels such as student attitude toward the teacher and actual teacher effectiveness. Factor II

TABLE III

Factor Loadings Squared for Teacher Image Questionnaire

		Knowledge of subject	Clarity of explanations	Fairness	Control	Attitude toward students	Stimulates interest	Attitude toward subject	Attitude toward student opinions	Variety in teaching procedures	Encouragement of student participation	Sense of humor	Planning and preparation	Average
	1	57.7	68.2	66.9	39.5	72.3	70.3	65.3	67.8	50.8	73.7	57.4	48.1	61.5
Factors	2	7.2	.4	1.0	41.6	7.2	1.0	.1	7.1	4.8	5.7	11.1	28.9	9.7
	3	3.4	.3	12.3	.1	9.1	16.0	.3	8.5	24.0	1.2	.2	4.6	6.7
	h^2	68.3	68.9	80.2	81.2	88.6	87.3	65.7	83.4	79.6	80.6	68.7	81.6	77.9

might be called a structure centered factor since it is positively correlated with such items as knowledge of subject, control, attitude toward subject, planning and preparation and negatively correlated with fairness, attitude toward students, attitude toward student opinions and encouragement of student participation. Factor II is not as clear in a statistical sense as is Factor I and Factor III is even less clear. Factor III might be labeled a student centered factor based on the directions of its various factor loadings. For example, it is negatively correlated with knowledge of subject and positively correlated with fairness and attitude toward students. Of course, the reason why Factors II and III are not as clear as one might hope is due to the fact that Factor I is such a strong factor which by itself accounts for over half the variance in the total test scores.

Discussion

As noted in the introduction of this paper, some behavioral science researchers have identified two basic factors which seem to account for reactions to the behavior of group leaders. These two factors have been labeled as organization centered and group centered variables. In the teaching-learning situation the factors are normally called teacher-centered and student-centered. Other researchers have identified one basic factor called an evaluative dimension. Results of this study seem to support the latter group in that one evaluative factor accounted for much more of the variance in student reactions to teachers than any other factors including those which might be thought of as teacher-centered and student-centered. This factor was identified as a kind of teacher charisma or popularity.

The information presented here should help educators to recognize the limitations, strengths, and meaning of student reactions to teachers. Students do not respond directly to specific questions regarding teacher effectiveness. Rather, a kind of halo effect based on teacher charisma or popularity determines to a large extent how students react to questions about their teacher. This is not to say that student ratings of teachers are not important or meaningful. Teacher charisma is probably a function of teacher effectiveness. Furthermore, as indicated above, at least 40% of the variance in student ratings of teachers is independent of the charismatic factor and probably represents fairly objective student judgments.

Results of this study might be of particular interest to those educators considering the use of student ratings as measures of teacher effectiveness for purposes of merit pay and promotion. These results suggest that student ratings of teachers for grades seven through twelve may be more a measure of teacher charisma or popularity than of actual teacher effectiveness. However, the fact that about 40% of student ratings is unrelated to this evaluative dimension indicates that student ratings might be used profitably as one part of evaluation packages consisting of measures on several additional variables such as peer ratings, administrator ratings, student growth in both the cognitive and non-cognitive areas, and teacher awareness of sound teaching practices relevant to his special interest area. Of course, the specific variables considered in an evaluation package, as well as the relative importance of each, should be a function of job expectations for the person being evaluated.

Staff members of the Educator Feedback Center have experimented with these rather comprehensive effectiveness measures, and relevant findings soon will be presented in the literature.

References

Blake, R. R., and Mouton, J. S. The Managerial Grid. Houston: Gulf Publishing Company, 1964.

Brown, A. F. Reactions to Leadership. Educational Administration Quarterly, Winter 1967, pp. 62-73.

Flanders, N. A. Teacher Influence, Pupil Attitudes, and Achievement, U. S. Office of Education Cooperative Research Monograph No. 12, Washington: U. S. Government Printing Office, 1963.

Halpin, A. W. Administrative Theory in Education. New York: Macmillan Company, 1958.

Kepner, C. H., and Tregoe, B. B. The Rational Manager. New York: McGraw-Hill Book Company, 1966.

Osgood, Charles E., George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning. Urbana, Illinois: University of Illinois Press, 1957, pp. 1-342.

Stogdill, R. M. Manager, Employees, Organizations. Columbus: Bureau of Business Research, Ohio State University, 1966.

Stogdill, R. M. Manual for the Leader Behavior Description Questionnaire - Form XII. Columbus: Bureau of Business Research, Ohio State University, 1963.

Stern, G. Measuring Noncognitive Variables in Research on Teaching. Chapter 9 of Handbook of Research on Teaching, ed. by N. L. Gage, Chicago: Rand McNally and Co., 1963.